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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/EP2004/013414		International filing date (day/month/year) 24.11.2004	Priority date (day/month/year) 09.12.2003	
International Patent Classification (IPC) or national classification and IPC A23G9/14, A23P1/12, A23L1/00, A23G9/00				
Applicant UNILEVER PLC et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  21.06.2005		Date of completion of this report  09.11.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Groh, B Telephone No. +49 89 2399- 		

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/013414

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-4 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/013414

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-4
	No: Claims	

Inventive step (IS)	Yes: Claims	
	No: Claims	1-4

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Industrial applicability (IA)	Yes: Claims	1-4
	No: Claims	

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**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V**

Reference is made to the following documents:

- D1: US-A-5 919 510 (FAYARD GILLES ET AL) 6 July 1999 (1999-07-06)  
D2: CLARKE C: "Making ice cream - it's physical chemistry" RSC EDUCATION AND  
PROFESSIONAL DEVELOPMENT, [Online] 2003, pages 1-5, XP002280123  
Retrieved from the Internet: URL: [http://www.rsc.org/lap/educatio/eic/2003/clarke\\_jul03.htm](http://www.rsc.org/lap/educatio/eic/2003/clarke_jul03.htm) [retrieved on 2004-05-13]  
D3: DE 43 22 702 A1 (C. P. SCHMIDT VERPACKUNGS-WERK GMBH & CO KG, 67663 KAISERSLAUTERN, DE) 12 January 1995 (1995-01-12)  
D4: EP-A-1 212 948 (UNILEVER PLC; UNILEVER) 12 June 2002 (2002-06-12)  
D5: MARSHALL R T ET AL: "Ice Cream"; Fifth Edition; Aspen Publ. Inc., Gaithersbourg, USA, 2000, pages 22-23, 28, XP002278685  
D6: US-A-4 400 405 (MORLEY ET AL) 23 August 1983 (1983-08-23)  
D7: JUNG-LIN CHANG ET AL: "CASEIN MICELLES PARTIALLY HYDROLYZED BY CHYMOSIN TO MODIFY THE TEXTURE OF LOWFAT ICE CREAM" JOURNAL OF DAIRY SCIENCE, AMERICAN DAIRY SCIENCE ASSOCIATION, CHAMPAIGN, ILLINOIS, US, vol. 78, no. 12, 1 December 1995 (1995-12-01), pages 2617-2623, XP000580304 ISSN: 0022-0302  
D8: US-A-4 507 326 (TARANTINO ET AL) 26 March 1985 (1985-03-26)

**1 Priority**

This application claims priority based on EP 03 257 721 (09.12.03). The priority document discloses that the stabilizer content is less than 1 %, however the priority document does **not** disclose that the stabilizer content is not more than 0,5 % (see present claim 3).

**2 Novelty (Art. 33(2) PCT)**

Non of the prior art, as reflected in the search report, discloses a frozen aerated product with all features as claimed in present claim 1.

Claims 1 to 4 meet Art. 33(2) PCT.

### **3 Inventive Step (Art. 33(2) PCT)**

The present application is about frozen aerated products (e.g. ice cream - like products), with the following features:

- 
- A. containing less than 4,5 % fat
  - B. having an overrun of 30 - 120 %
  - C. ice content of 30 to 55 % (at -18° C)
  - D. the product has a defined shape ('log shape' and 'aspect ratio')

#### **3.1 Inventive step in view of D1**

D1 (US 5 919 510) discloses a frozen sorbet product (without fat) with an overrun between 20 and 150 % (see col. 2, l. 49). With examples 13 - 15, D1 discloses sherbets with 29% sugar (sucrose) and 10% glucose syrup and 35% unsweetened puree of raspberries. Hence, the total amount of mono- and disaccharides, which are active freezing point depressing molecules, is well above 30% (with the unsweetened fruit puree further contributing to the freezing point depressing substances in the sorbet).

It is further known, or can be calculated, that, for example, an aqueous 32-% sucrose solution will contain 50% ice at a temperature of -18°C (see, for example, D2).

Although D1 does not state explicitly the amount of frozen water in the sorbets (examples 13 - 15) it is concluded by comparison (concentration of added saccharides and freezing point depressants coming from the fruit puree), that the amount of frozen water in those samples is about 40 to 50 % (at -18°C).

Therefor, the only difference between D1 and the present claims is that D1 does not specify the shape of the sorbet samples.

The frozen products described in examples 13 -15 of D1 leave the extruder (see

fig.1) at a temperature of  $-16^{\circ}\text{C}$  (= high content of water frozen), corresponding to a paste-like product with a viscosity and stability high enough for shaping it into any bulk shape.

Consequently, the only feature in which the present application differs from the prior art (D1, examples 13-15) is the shape of the product.

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That feature (shape of product), especially since it comprises basic shapes, such as a regular cube, elongated cube, half-cylinder, etc., does not provide any basis for an inventive step, because ice cream-like products are commonly produced in a large variety of shapes, including, e.g. basic rectangular ice cream containers or boxes (see D3, Fig. 1 and col. 1; l. 34).

Furthermore, extruded ice cream-like products, are also known to be shaped in 'log-shaped' forms by simply cutting the extruded ice cream strand into portions (see, for example, D8, fig. 1b and 5).

Claims 1 to 4 do not involve an inventive step.

### 3.2 Inventive step in view of D4

D4 discloses aerated, extruded ice cream-like products. These products have a fat content between 3 and 15 % [0028], the overrun is at least 90 % [0016], preferably 100% [0029]. The temperature at the point of extrusion is  $-18^{\circ}\text{C}$  [0015], and consequently the extruded product is paste-like and stable enough to be formed into any bulk shape after extrusion.

Low-fat ice cream (approx. 2 to 4 % fat) contain approx. 35 - 38% total solids and 18-21 % sweeteners (generally sucrose or other mono- or disaccharides), see D5, page 27, Table 4.1. Based on these ingredients (mainly the freezing point depressing sugars) it can be calculated that low-fat ice cream (according to the average composition of D5) contains approx. 53 % ice at  $-18^{\circ}\text{C}$ .

The only difference between D4 and the present application is the shape of the

paste-like and stable product.

With the argumentation as provided here above (point 3.1), claims 1 to 4 do not involve an inventive step.

### 3.3 Inventive step in view of D6 or D7

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Prior art D6 and D7 disclose ice cream-like products with sufficient freezing point depressing solids (resulting in an ice content between 30 and 55% at -18° C), an overrun of 80 - 90% (D7, p.2619, 1st paragr.) respectively 100 - 20% (D6, col. 4 bottom), and with a low fat content (D6, claim 1; D7 first sentence).

The only difference to the present application is feature D.

The problem to be solved can be formulated to provide a defined form ('log-shape' and 'aspect ratio') for these ice cream-like products.

The skilled person would use a container of the desired shape ('log-shape') and pour the viscous ice cream (of, for example D6 or D7) into said container. After the traditional ice cream hardening step (low temperature for several hours), a frozen aerated product, as claimed, is obtained.

There is no need for any inventive activity, especially because 'log-shape' containers, such as rectangular 'brick' or 'box-like' ice cream containers are commonly used for ice cream packaging.

**It is not at present apparent which part of the application could serve as a basis for a claim meeting the requirement of Art. 33(3) PCT.**

- 4 Industrial applicability (Art. 33(4) PCT) is acknowledged by the use of the claimed product as food product (e.g. ice cream).

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